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METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO STEAMING UNDER ATMOSPHERIC PRESSURE

(Second Revision)

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TO
IS : 974 - 1984 METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO STEAMING UNDER ATMOSPHERIC PRESSURE

(Second Revision)

(*Clause* 7.3, *Note*) — Substitute 'NOTE 1' for the existing 'NOTE' and insert 'NOTE 2' after 'NOTE 1' as follows:

'NOTE 2 — In case of doubt in the colour fastness ratings as assessed by an observer, the assessment should be done by at least three observers and the over-all average rating should be reported.'

[*Page* 7, *Appendix* A, NOTE 1(a)] — Substitute the following for the existing matter:

'(a) *p*H value of aqueous extract = 6·5 to 7·5.'

(TDC 5)

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METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO STEAMING UNDER ATMOSPHERIC PRESSURE

(Second Revision)

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Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO STEAMING UNDER ATMOSPHERIC PRESSURE

(Second Revision)

0. FOREWORD

0.1 This Indian Standrad (Second Revision) was adopted by the Indian Standards Institution on 14 December 1984, after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textile Division Council.

0.2 This standard was first published in 1956 and subsequently revised in 1966. It is again being revised to bring it in the line with ISO 105-1981-E 11 Method for determination of colour fastness to steaming issued by the International Organization for Standardization (ISO). Changes have been made accordingly in the preparation of composite specimen for evaluating staining.

0.3 In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standrad prescribes a method for determination of colour fastness of textile materials (dyed or printed) irrespective of their composition (cotton, silk, man-made fibres, etc) and form (fibre, yarn or fabric) to the action of steaming under atmospheric pressure.

2. PRINCIPLE

2.1 A specimen of textile in contact with pieces of specified adjacent fabrics is rolled into the form of a cylinder and placed in the neck of the

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*Rules for rounding off numerical values (*revised*).

flask through the means of glass tube. The specimen is then subjected to steaming by boiling water contained in the flask. The staining of the pieces of adjacent fabrics is assessed with standard grey scale (*see* IS : 769-1982*).

3. SAMPLING

3.1 The quantity of one definite type and quality of fibre, yarn or fabric (dyed or printed) under essentially similar conditions shall constitute a lot. If the lot contains more than 200 kg of yarn or fibre or more than 500 pieces of fabric it shall be divided into sub-lots of 200 kg or less of yarn or fibre and 500 pieces or less of fabric.

3.1.1 Each sub-lot shall be tested separately.

3.2 Sampling for Fibre and Yarn — From a sub-lot, 15 increments from different parts shall be taken and mixed thoroughly. The increments, thus mixed shall constitute the test sample. The mass of the increments shall be such that three test pieces can be prepared from the test sample.

3.3 Sampling for Fabrics — From the sub-lot, three pieces of fabric shall be selected at random. The pieces, thus selected, shall constitute the test sample.

4. APPARATUS

4.1 A glass tube open at both ends, with 3 cm inside diameter, mounted in a cork stopper and fitted into the neck of a wide-neck conical flask, of about 2 litre capacity. A wire ring shall be fixed in the cork stopper, with the loop covered with a thin fabric to catch spray. The flask shall contain about 0·5 litre of distilled water, to which some small beads are added (*see* Fig. 1).

4.2 Adjacent fabric 10 × 4 cm — undyed, free from size and other finishing materials and of the same fibre as the specimen (*see* Appendix A).

NOTE 1 — The length of 10 cm may be reduced if the cylindrical specimen to be tested is too thick for the cylinder to be inserted into the tube (*see* **4.1**).

NOTE 2 — The constructional and other requirements for adjacent fabrics as given in Appendix A are for guidance only.

4.3 Two cotton adjacent fabrics, each 10 × 4 cm — undyed, free from size and other finishing materials and of plain weave (*see* Note 2 *under* **4.2** and Appendix A).

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*Method for evaluating staining (*first revision*).

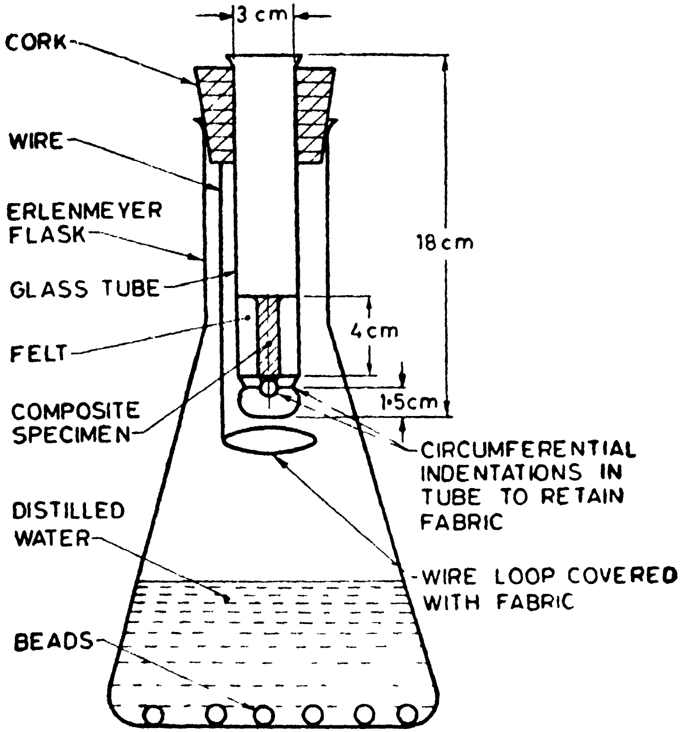

FIG. 1 APPARATUS FOR COLOUR FASTNESS TO STEAMING UNDER ATMOSPHERIC PRESSURE

4.4 Undyed scoured wool felt.

4.5 Grey scale for assessing staining.

5. REAGENTS

5.1 Distilled Water — *see* IS : 1070-1977*.

6. COMPOSITE SPECIMEN

6.1 Preparation of Test Pieces

6.1.1 If the material to be tesed is fabric, draw a 10 × 4 cm test piece from each piece in the test sample (*see* Note *under* **4.2**).

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*Specification for water for general laboratory use (*second revision*).

6.1.2 If the material to be tested is yarn, knit or weave the test sample into fabric and draw from it three 10 × 4 cm test pieces; alternatively, prepare three 10 × 4 cm test pieces in the form of parallel lines of yarn.

6.1.3 If the material to be tested is loose fibre, from the test sample, comb and compress the amount of material weighing approximately equal to the mass of the cotton adjacent fabric into a sheet to make a 10 × 4 cm test piece. Similarly prepare two more test pieces from the test sample.

6.2 Preparation of Composite Specimen

6.2.1 Prepare a composite specimen measuring 10 × 4 cm by placing successively on a piece of cotton adjacent fabric (*see* **4.3**), a piece of test specimen (*see* **6.1**), a piece of adjacent fabric (*see* **4.2**) and a further piece of cotton adjacent fabric (*see* **4.3**). Roll this composite specimen into the form of a cylinder with the cloth being tested as near the middle as possible.

NOTE — To facilitate rolling, one short side of the composite specimen may be stitched.

6.2.2 Similarly prepare the other two composite specimens.

7. PROCEDURE

7.1 Bring the water in the conical flask to boil. Wrap the cylindrical composite specimen in felt (*see* **4.4**) so that it fits easily in the glass tube in the neck of the flask and is retained by the indentations in the lower part of the tube (*see* Fig. 1). Boil for 30 minutes.

7.2 Remove the composite specimen from the tube, separate the components and dry by hanging in air at temperature not exceeding 60°C.

7.3 Evaluate the staining of the adjacent fabrics by the method prescribed in IS : 769-1982*.

NOTE — The pieces of adjacent fabrics should be allowed to cool after drying and to regain their normal moisture content before evaluation.

7.4 Repeat the test with the remaining composite specimens.

8. REPORT

8.1 Report, individually, the numerical ratings for staining of the adjacent fabrics used in the preparation of the composite specimen.

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*Method for evaluating staining (*first revision*).

APPENDIX A

(*Clauses* 4.2 *and* 4.3)

CONSTRUCTIONAL DETAILS OF ADJACENT FABRICS

Sl No.	*Adjacent Fabric*	*Mass in g/m²*	*Tpye of Weave*	*Ends/cm*	*Picks/cm*	*Tex of Yarn*	
						Warp	Weft
i)	Cotton	115 ± 5	1/1 Plain weave	35	31	16·5	14
ii)	Viscose	140 ± 5	1/1 Plain weave	28	22	20	33
iii)	Wool	125 + 5 − 0	1/1 Plain weave	21 ± 0·5	18 ± 0·5	15·6 × 2 Worsted	15·6 × 2 Worsted
iv)	Polyamide	130 ± 5	1/1 Plain weave	17·5	20	10 × 2	20
v)	Polyester	130 ± 5	1/1 Plain weave	23·5	20·5	7·5 × 2	20
vi)	Acrylic	135 ± 5	1/1 Plain weave	17·5	16	10 × 2	10 × 2

NOTE 1 – For wool adjacent fabric, additional requirements are :

(a) *p*H value of aqueous extract = 8·0 ± 0·5, (b) Residual fat content = 0·4 ± 0·1 percent, and (c) Alkali solubility — less than 18 percent.

NOTE 2 — For polyamide and acrylic, additional requirements are :

(a) *p*H of equeous extract = 7 ± 0·5, and (b) Residual oil content less than 1·0 percent.

NOTE 3 — For polyester additional requirement is residual oil content less than 0·5 percent.

NOTE 4 — The adjacent fabrics shall be bleached and free from any sizing or finishing material and optical brightening agents.

(*Continued from page* 2)

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